

REMARKS

Applicants wish to thank the Examiner for his review of the present application. Claims 69-72, 75-77, 80-92, 94-98, 100-118 and 120 are currently pending. Applicants have amended claims 69, 75-77, 80 and 84-87. Applicants have cancelled claims 1-68, 73-74, 78-79, 93, 99 and 119. No new matter has been added.

The Office Communication requests that Applicants specifically point out the support in the specification for each of the newly presented claim limitations. Claims 69 and 80 have been amended to cite a method of “generating a kinematic model of a patient’s joint using a computer system” by obtaining “from a first source electronic” image data. Support for these elements can be found several places in the specification including at paragraphs 75, 115, 125 and 202 of the published application. Claims 69 and 80 have been further amended to include “obtaining from a second source electronic” biomechanical data. Support for this element can be found several places in the specification including at paragraphs 26, 68, 118 and 211 of the published application. Claims 69 and 80 have been further amended to include “generating from” the “image data” and biomechanical data “an electronic kinematic model of” the “patient’s” joint. Support for these elements can be found several places in the specification including at paragraphs 71, 127, 212 and 290 of the published application.

Claim 75 and 85 have been amended to delete “wherein determining biomechanical data further includes” and insert “further comprising”. Claims 76-77 and 86-87 have been amended to include a “kinematic model”. Support for this can be found several places in the specification including at paragraphs 211, 212 and 336 of the published application. Claim 84 has been amended to delete “determining” and insert “further”.

The Office Communication also requests that Applicants present arguments pointing out the specific distinctions believed to render the claims patentable over any applied references. In light of the interview with the Examiner on September 10, 2009, Applicants present the following arguments. Presently, in this case, there are two independent claims, claims 69 and 80. Amended independent claims 69 and 80 define, in relevant part, methods of generating a kinematic model of a patient’s joint using a computer system comprising obtaining from a first source image data of a joint that includes both normal and diseased tissue, obtaining from a second source biomechanical

data, and generating from the image data and biomechanical data an electronic kinematic model of the patient's joint. In claim 69, the biomechanical data comprises at least data concerning relative motion of the joint. In claim 80, the biomechanical data comprises at least data concerning contact area between two components of the joint. The pieces of art cited by the Examiner are each distinguished from amended independent claims below.

Delp et al. (U.S. patent no. 5,682,886)

Delp fails to teach the claimed methods, because, among other reasons, Delp does not disclose the use of biomechanical data as disclosed in the present application. Delp discloses a method for planning a surgery that focuses on the identification and correction of anatomical features. (*See, e.g.*, Delp Abstract and Summary of the Invention.) In particular, Delp obtains image data of the patient's leg and then generates a three-dimensional anatomical model of the bones (col. 8, lines 32-65). Delp does not teach or suggest a method of generating a kinematic model of a patient's joint from image data of a joint that includes both normal and diseased tissue and biomechanical data. Similarly, Delp does not disclose either obtaining biomechanical data concerning relative motion of a joint as claimed in amended claim 69 or a contact area of a joint as claimed in amended claim 80.

Berry (U.S. patent no. 5,895,428)

Berry provides an implant which has an upper member that pivots and a lower member that locks and engages adjacent vertebrae. The surfaces of Berry's device are ceramic and allow bone growth into its surfaces and therefore bonds with adjacent vertebra. Berry does not teach or suggest many of the elements of the amended claims, including obtaining image data of a patient's joint that include both normal and diseased tissue, obtaining biomechanical data concerning relative motion of a joint and generating an electronic kinematic model of the patient's joint from the image data and biomechanical information as claimed in amended claim 69 or amended claim 80.

Kshirsagar et al. (Investigative Radiology, vol. 33, no. 5)

Kshirsagar teaches a method of measuring localized cartilage volume and thickness of human knee joints by analyzing three-dimensional MRIs. Kshirsagar fails to teach or suggest obtaining image data of a patient's joint that include both normal and diseased tissue, obtaining

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biomechanical data concerning relative motion of a joint and generating an electronic kinematic model of the patient's joint from the image data and biomechanical information as claimed in amended claim 69 or amended claim 80.

Pelletier et al. (U.S. Patent No. 6,560,476)

Pelletier discloses an orthopedic magnetic resonance imaging system for evaluating disease progression, and, in the primary embodiments, compares the imaged cartilage to prior images to determine the progression of the disease. Pelletier fails to teach or suggest obtaining image data of a patient's joint that include both normal and diseased tissue, obtaining biomechanical data concerning relative motion of a joint and generating an electronic kinematic model of the patient's joint from the image data and biomechanical information as claimed in amended claim 69 or amended claim 80.

Conclusion

It is believed that the application is now in order for allowance and Applicants respectfully request that a notice of allowance be issued. Applicants believe that a one month extension of time is required and request that the associated fee be charged to deposit account number 19-4972. Applicants also request that any additional fees required by this paper be charged to or any overpayments be credited to deposit account number 19-4972. Applicants also request that the examiner contact the undersigned, if it will assist in processing this application through issuance.

Respectfully submitted,

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